Random Sample Methodology

Methodology

Random sampling consists of selecting a representative subset of the fleet and acquiring full IM147 emissions data from the vehicle for purposes of program evaluation. The methodology is detailed below.

The IM147 test fleet is the subject fleet for random sampling. This fleet includes all 1981-1995 gasoline powered vehicles with GVW < 8501 which receive an IM147 test.

The approach for selection of vehicles for the random sample is that set percentages of vehicles are selected based on test sequence and pass/fail status. Any vehicle which is selected is "flagged" so that it will be given full IM147 cycles on each test in this inspection cycle. The current percentages are shown below.

% Initial Test	Pass – 1.1	Fail – 3.0
% 1st Retest	Pass – 2.0	Fail – 4.0
% 2nd Retest	Pass – 2.0	Fail – 4.0

These percentages are the percentage of vehicles newly selected in the respective cycle. The actual number of vehicles subjected to random sampling is this percentage plus retests of vehicles flagged in a previous cycle.

The flagging scheme will include coding to identify that this vehicle is a random sample vehicle, and indicate the test cycle in which it was chosen and the current test cycle (e.g. – a "35" flag means that the current test is the fifth test for the vehicle which was chosen as a random sample vehicle during the third test, or second retest.

For 1981-1995 random sample vehicle fleet, a random IM147 will consist of 3 full IM147 cycles containing an official, full IM147 test. If the vehicle passes any cycle, then it passes. The official passing result will be the emissions from the first passing cycle. If the vehicle fails all three cycles, the official failing result will be the emissions from the last cycle. Additionally, the record will indicate whether the random IM147 met the excursion criteria.

Random sampling will be conducted at all Area A stations and lanes equipped with a dynamometer.